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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/349,347	07/07/1999	CATHERINE ROSENBERG	585-1003	6531

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EXAMINER	
ABELSON, RONALD B	
ART UNIT	**PAPER NUMBER**
2666	15

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/349,347	ROSENBERG ET AL.	
	Examiner	Art Unit	
	Ronald Abelson	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2003 and 17 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21 and 23-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *20,21,42 and 43* is/are allowed.

6)☒ Claim(s) *1-6,9-11,13,19,23-28,31-33,35,39 and 41* is/are rejected.

7)☒ Claim(s) *7,8,12,14-18,29,30,34,36-38 and 40* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 July 1999* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/17/2003 has been entered.

Allowable Subject Matter

2. The indicated allowability of claims 9-11 and 31-33 is withdrawn in view of the newly discovered reference(s) to Fan. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the

> invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-6, 9-11, 13, 19, 23-28, 31-33, 35, 39, and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Fan (US 6,324,165).

Regarding claims 1, 13, 20, 23, and 42, Fan teaches a method and apparatus for an integrated CAC and BoD system for allocating the resource of a common medium uplink of a multiple access asynchronous network segment (fig. 3). The BoD is integrated within the input and output modules (fig. 3 Dynamic rate based queue scheduler).

The CAC is arranged to accept or deny requests for new virtual connections (VCs) on the network segment (col. 2 lines 17-19) and allocates a static resource to all virtual connections or grouping of VCs accepted by the CAC (CBR, VBR, col. 9 lines 3-7) and means for booking dynamic resource to the VCs or groupings of VCs that require guaranteed dynamic resource (M_i, col. 10 lines 33-38). The examiner corresponds the applicant's static resource with the resources such as bandwidth that are guaranteed in Fan.

The BoD is arranged to allocate dynamic resource on a request basis during an established VC connection (distributes unused bandwidth among competing classes, col. 23 line 66 - col. 24 line 3) and comprises means for allocating dynamic resource in such a way that all VCs or groupings of VCs requesting dynamic resource are dynamically allocated request dynamic resource (DRC scheduling, distribution of unused bandwidth, assigned dynamically, col. 9 lines 44-51) up to at least the guaranteed dynamic resource (guarantee the minimum rate, col. 9 lines 44-46) which has been booked for them by the CAC (M_i, col. 10 lines 33-38).

Regarding the limitation 'allocate dynamic resource on a request basis', the examiner maintains that the competing classes (col. 23 line 66 - col. 24 line 3) are requesting resources.

Regarding claims 13 and 35, in addition to the limitations previously listed, when the requested resource from the VC or group of VCs is less than or equal to the booked dynamic resource for the VC or group of VCs, the BoD allocates the VC or group of VCs all of the requested resource and when the requested resource from the VC or group of VCs is greater than the booked dynamic resource for the VC or group of VCs, the BoD

allocates the VC or group of VCs a share of the remainder of the requested resource, from the remaining resource capacity of the common medium uplink (unused bandwidth, minimum rates plus a fair share, col. 9 lines 46-55).

Regarding claim 23, in addition to the limitations previously listed, as previously stated the system booking dynamic resource to the VCs that require guaranteed dynamic resource on a per VC or per group of VCs basis and the system allocating dynamic resource to VCs or to groupings of VCs requesting dynamic resource during an established VC in such a way that all VCs or groupings of VCs requesting dynamic resource are dynamically allocated requested resource dynamic resource up to at least the guaranteed dynamic resource which has been booked for them by the CAC (unused bandwidth, minimum rates plus a fair share, col. 9 lines 46-55). Regarding the limitation that these functions are performed by the CAC, the examiner maintains the CAC (fig. 3 box 33) and Dynamic rate based queue scheduler (fig. 3) are integrated software modules within the switch (col. 9 lines 20-22).

Regarding claims 19 and 41, the means for allocating static resource in the CAC and the means for allocating dynamic

resource in the BoD are constrained to allocate resource in such a way that traffic on the common medium access uplink is shaped by the integrated CAC and BoD resource allocation system (fig. 3: CAC, Dynamic rate based queue scheduler, col. 9 lines 11-14, 39-46).

Regarding claims 2 and 26, the groupings of VCs are within the same subscriber access unit (SAU) or terminal (fig. 3: CBR, RT_VBR, ABR, UBR).

Regarding claims 3 and 24, the means for allocating static resource in the CAC allocates static resource to a VC when a VC is set up for the duration of the connection associated with the VC (required bandwidth for each connection, col. 9 lines 14-20).

Regarding claims 4 and 25, system books dynamic resource and reserves booked dynamic resource to a VC when a VC is set up for the duration of the connection associated with the VC (minimum rate for a non-real-time queue, col. 9 lines 39-55). Regarding the limitation that these functions are performed by the CAC, the examiner maintains the CAC (fig. 3 box 33) and Dynamic rate based queue scheduler (fig. 3) are integrated software modules within the switch (col. 9 lines 20-22).

Regarding claims 5 and 27, wherein the means for allocating static resource in the CAC allocates static resource to a group of VCs and changes the amount of static resource allocated to a group of VCs when new connections are set up or connections are released within the group (computes the bandwidth required, col. 9 lines 11-14)

Regarding claims 6 and 28, the means for booking dynamic resource in the CAC books dynamic resource to a group of VCs and changes the amount of booked resource allocated to a group of VCs when new connections are set up or connections are released within the group (preferably, these rates are assigned dynamically, col. 9 lines 39-55). Regarding the limitation that these functions are performed by the CAC, the examiner maintains the CAC (fig. 3 box 33) and Dynamic rate based queue scheduler (fig. 3) are integrated software modules within the switch (col. 9 lines 20-22).

Regarding claims 9, 11, 31, and 33, the CAC allocates static resource (CAC computes bandwidth required by a real-time flow) and the BoD allocates dynamic resource (col. 10 lines 41-42) on a periodic basis. Note, given the allocation is real

time, then periodic updating is inherent. The examiner equates the applicant's 'periodic basis' with the time period that a VC is active. Note, VCs are created dynamically when the need arises and are torn down when not in use.

Regarding claims 11 and 33, in addition to the limitations previously listed, allocations made by the BoD for the next period are independent of the allocations made by the BoD for the current period. (col. 10 lines 33-42). Note, M_i is dependent only on the current period.

Regarding claims 10 and 32, the CAC allocates static resource and the means for allocating dynamic resource in the BoD allocates dynamic resource on a periodic basis (see claim 9). Regarding the limitation, during a current period the means for allocating static resource in the CAC allocates resource for new VCs and de-allocates resource from released VCs for the next period and the means for allocating dynamic resource in the BoD allocates dynamic resource for the next period to VCs or groups of VCs requesting dynamic resource for the next period, this limitation has previously been addressed in claim 9. As previously stated, VCs are created dynamically when the need arises and are torn down when not in use.

Allowable Subject Matter

5. Claims 20, 21, 42, and 43 allowed.

6. Claims 7, 8, 12, 14-18, 29, 30, 34, 36-38, and 40 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter.

Regarding claims 17, 20, 39, 40, and 42, although Fan teaches an allocation table setting out resource allocation on the common access uplink which is controlled by the CAC when allocating static resource and booking dynamic resource (calculated minimum rate, col. 9 lines 11-22) and the DRC allocates dynamic resource (scheduler ensures that connection 'i' receives its minimum rate, col. 10 lines 34-42), nothing in the prior art of the record teaches or fairly suggests the DRC controls the allocation table. In contrast, Fan only teaches the scheduling information is provided to the DRC.

Regarding claims 7, 8, 29, 30, nothing in the prior art of the record teaches or fairly suggests the specific equation for allocating bandwidth, in combination with the other limitations listed in the claims.

Regarding claims 12 and 34, nothing in the prior art of the record teaches or fairly suggests the allocations made by the BoD for the next period are dependent of the allocations made by the BoD for the current period. In contrast, Fan teaches allocations made by the BoD for the next period are independent of the allocations made by the BoD for the current period. (col. 10 lines 33-42). Note, M_i is dependent only on the current period.

Regarding claims 14, 16, 36, 38, nothing in the prior art of the record teaches or fairly suggests allocating dynamic resources by maximizing the sum of the natural logarithms, in combination with the other limitations listed in the claims.

Regarding claims 15 and 37, nothing in the prior art of the record teaches or fairly suggests allocating dynamic resources by maximizing the product of all the BEs, in combination with the other limitations listed in the claim.

Response to Arguments

7. Applicant's arguments filed 9/15/2003, with respect to independent claim(s) 1, 13, and 23 have been fully considered but they are not persuasive.

The applicant states the CAC is responsible for allocating static resources and books dynamic resources. The BoD system allocates dynamic resources up to at least the value booked by the CAC (applicant: pg. 15 last paragraph). As previously discussed, Fan teaches these limitations (col. 9 lines 3-7, col. 10 lines 33-38). Regarding the limitations, "The BoD system allocates dynamic resources, ***at the request of a source … in response to an explicit request for an amount of resource*** (applicant: pg. 15 last paragraph), the applicant is arguing limitations that are not in the claims. The examiner maintains that the competing classes (Fan: col. 23 line 66 - col. 24 line 3) are requesting resources.

The applicant attempts to define a Bandwidth on Demand system (BoD) but does not provide any independent verification. The applicant states, "A BoD system receives explicit request for bandwidth resources, considers the requests, and allocates bandwidth. Only once the BoD system has allocated bandwidth to a

source can the source begin to transmit within agreed terms" (applicant: pg. 16: lines 6-10). Given the applicant provides his own definition as opposed to that which is held in the art, and the limitations are not in the claims, the examiner does not give the argument any weight.

Regarding the applicant's argument, "there is no negotiation proceess with a terminal before the terminal is granted resource (applicant: pg. 16 3rd paragraph), the applicant is arguing limitations not in the claims.

Regarding the applicant's argument "allocate dynamic resource on a request basis" (applicant: pg. 16 4th paragraph), the examiner reiterates that the competing classes of Fan (col. 23 line 66 - col. 24 line 3) are requesting resources.

Regarding the limitation, "Requiring a terminal to request dynamic resource allows the BoD system to calculate overall demand for resources for a period of time and to safely reallocate any resource which has been booked (by the CAC), but has not been requested by terminal for the forthcoming time period, to other terminals (applicant: pg. 16 last paragraph),

once again the applicant is arguing that which is not in the claims.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald Abelson whose telephone number is (703) 306-5622. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.

Ronald Abelson
Examiner
Art Unit 2666

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December 16, 2003

MELVIN MARCELO
PRIMARY EXAMINER